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HIGHER EDUCATION IN THE SOVIET UNION

By Elizabeth Moos



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HIGHER EDUCATION IN THE SOVIET UNION

INTRODUCTION

"As we look to the future, the question of how and whom we shall educate transcends all others. The attitude of our people toward education, the plan and philosophy on which we conduct it, shall determine in large measure whether the new generation shall exploit science and technology for good or for evil and whether knowledge will continue to advance. . . . It is inconceivable that we shall continue to understand ourselves or our relations with one another if educated people remain in their present ignorance of science."

In these words, Dr. Julius Stratton, provost of Massachusetts Institute of Technology, speaking on February 2nd, 1956 to the American Institute of Physics, expressed the deep concern of all thoughtful Americans about education in our country.

"Unless the number of our scientists and engineers increases at an accelerated rate our economy will be in serious trouble," said Admiral H. G. Rickover of the Atomic Energy Commission in November, 1955.

Increasingly, in discussions of our educational problems, reference is made to the educational system of the Soviet Union. This is natural, for both the U.S.A. and the U.S.S.R. depend upon science and technology for the development of their economic and social systems; both countries are presently concerned with the problems of educating scientists and technologists in ever greater numbers; both believe in education for everyone.

"The Soviet Union is challenging us fundamentally at what has traditionally been our two strongest points, technology and mass education . . . they have surpassed us in number and percentage of students enrolled in institutions above the secondary level. . . . The Soviet Union offers as much training to every boy and girl as his or her talents and abilities will absorb."

So wrote Mr. William Benton, former senator from Connecticut after a visit to the Soviet Union (New York Times, 4/1/56).

Professor S. Zucherman, Chairman of the British Commission on Scientific Manpower, in an article for the London Times of 11/30/55 wrote that British and American output of trained scientists was being left far behind and called for improvement because, he said, "the future is in the hands of men trained in basic science and of men able to exploit scientific advances for industrial and agricultural purposes."

It is the purpose of this pamphlet to provide some information about Soviet secondary and higher education.

GENERAL BACKGROUND

There are now 10 times as many universities and other institutions of higher education in the Soviet Union as there were before 1917 and 17 times as many secondary schools.

Between 1948 and 1953 the number of students in the schools of higher education doubled.

1,865,000 men and women are now studying in the 789 universities and institutes of the U.S.S.R., including persons in evening classes and correspondence courses.

In the more than 4,000 *tekhnikums* (vocational junior colleges), and other intermediate schools almost two million more are enrolled in regular or correspondence courses.

Two hundred thousand engineers and scientific workers are graduating yearly from Soviet universities and institutes.

Four million men and women are to be trained before the end of the current five-year plan in 1960.

In September of 1956, all tuition fees, from primary school through the university, including correspondence or evening schools, will be abolished.

"What is it that most impresses a foreign observer about the Soviet school system?" asked Mr. Benton in the New York Times of April 1, 1956. He answered that it is that "in less than forty years, starting with a population about 50% (actually 80%... ed. note) illiterate, the Soviets have built a 7-year primary school system rivaling our own in universality with nearly 100% enrollment." Mr. Benton further notes the swift development of their secondary education which is on the way to becoming universal.

Seven-year schooling, that is, from the age of seven through fourteen, is universal, compulsory, free and coeducational throughout the U.S.S.R. Now all the children in large cities go to school until they are 17 and by the end of the present five-year plan, that is by 1960, ten year education will be compulsory and free throughout the Soviet Union.

In order to achieve this goal of ten years of school for all

children, the physical plant and the number of teachers must be expanded. The current budget reflects this: 72.6 billion rubles are allotted to education for 1956, 4.2 billion more than was allotted for 1955.

THE SOVIET SCHOOL SYSTEM

The school system is divided into the primary grades, 1-2-3-4; the middle secondary grades, 5-6-7; and the upper secondary grades, 8-9-10. All Soviet children receive the same education during the first seven years, except children gifted in the arts who may attend a school—even beginning in the primary grades—where in addition to the regular subjects, special training in music-ballet-etc. will begin. Children who attend these schools spend eleven years before graduating instead of the usual ten years. There are also special schools preparing students for a military career: the Nakhimov schools for the Navy and the Suvorov schools for the Army.

For the majority of children, a choice must be made at the end of the 7th year. Formerly, some went to work. Soon all must continue education in some form for three more years. This may be in the regular secondary school or a trade school where, along with general studies, the student will learn a trade or a skill and be prepared to take a job at the end of the course. Formerly, *tekhnikums*, junior colleges, were open to graduates of the seven-year school in some fields. More and more, however, the *tekhnikums* are recruiting from graduates of the regular or technical ten-year schools.

EDUCATION IS FOR EVERYONE

The Soviet educational system is planned to equalize educational opportunities so that neither geographical location, race or nationality will lessen the chances for a complete education. Toward this end, text books are printed in 58 different languages and in non-Russian speaking areas teaching is carried on in the native language with Russian as a special subject. In non-Russian schools the course is eleven years instead of ten. Boarding homes are set up in connection with secondary schools in many areas so that children who live in sparsely settled or remote regions where there are no nearby secondary schools, may complete their education.

Boarding schools, as we know them, have never been part of the Soviet educational plan. Now, however, boarding schools are to be

built in healthful country areas for children whose parents, for one reason or another, wish to have them in a boarding school. As a result of the war, there are many families fatherless. In families where both parents are at work or where the parents' work requires them to live in an area not particularly good for children, they may wish to send the children to boarding school. The scholastic standard will, it is evident, be high. Fees for boarding will be low and paid only by parents able to afford them.

Soviet teaching practice does not grade children on the basis of intelligence or aptitude tests. Prof. Petrov of the Moscow Pedagogical Institute, told British teachers at a symposium in London in February, 1956 that "Intelligence tests (so-called IQ tests) have been abolished in the Soviet Union. They gave false guidance to teachers who might give up a child with a low IQ who had latent possibilities. Such tests do not really test anything." Ludmilla Dubrovina, the Deputy Minister of Education in the Russian Federated Socialist Republic, in this country for speaking engagements in March, 1956, was asked by a New York teacher whether children were divided into groups of "slow" and "fast" learners in the USSR. She replied that "this question goes to the very core of Soviet educational philosophy. Never do we do this."

How then are children promoted? On the basis of daily work, on the basis of marks received on term examinations given in subject matter. Marks given for conduct are included and weigh heavily in the final examination at the end of the ten years.

Students who fail in a subject (beginning with the 4th grade, examinations are given) must study during the summer and take the examination in the fall. The child may go to school and be tutored or study at home. If the child fails in the re-examination, he or she will have to repeat the year's work. Teachers and school director are held responsible for failures. Soviet educators are expected to anticipate difficulties, to see that special help is given at the first indication of trouble. The cause of the difficulty is sought; health, home and school conditions are considered. A fellow-student may be assigned to give regular help; sometimes a qualified parent undertakes to tutor the child. A student who repeatedly fails in spite of all efforts may be directed to a less academic type of school, such as a trade school where only 25% of the time is spent on general subjects, including language, mathematics, physics and political economy.

In more serious cases of failure in subject matter and/or conduct, or because of health—the child may be directed to a special school where there are fewer pupils per teacher, a slower pace, more physical and manual activity, and teachers trained to work with children who have problems of one sort or another. About 1% of the school children attend such special schools for some period. They may be transferred back to their regular school whenever they prove able to carry the work.

SECONDARY EDUCATION

What kind of preparation do Soviet students receive?

The importance of preparation is well recognized in our own country. Executives and educators considered this problem at a conference at Teachers College, Columbia University in April, 1956. They heard Prof. F. L. Fitzpatrick of Teachers College say that in the U.S.A. "the average student arrives on the doorstep of college without any recent background in mathematics or the physical sciences." Admiral Lewis Strauss, Chairman of the Atomic Energy Commission, told a group of engineers recently that the lack of properly qualified teachers in our secondary schools "has resulted, in some cases, in a complete lack of science teaching."

"From our point of view," said Deputy minister Ludmilla Dobrovina, speaking at the Herald Tribune Forum in February, 1956, "one of the most important tasks of secondary schooling is to build a foundation of systematic knowledge, the level of which is strictly outlined by the state program and which is identical for all students in the same class." According to Soviet theory, every child can benefit from a program which provides solid grounding in the sciences, mathematics, languages, history and literature.

The curriculum studied by the great majority of all children in regular secondary schools is uniform for the whole country. It includes Russian language and literature; in non-Russian speaking areas the native language and literature; a foreign language (beginning in the 5th grade), history, geography and the Soviet constitution. From 35-40% of the program is devoted to science and mathematics. During the ten years the student will have studied natural science for six years, physics for five, chemistry for four, astronomy for one. Mathematics is studied every year and includes algebra, geometry, trigonometry, progressions, some of the theory of equations and the binomial theorem.

The Soviet secondary school student has no elective subjects except foreign language; the pupil may choose either French, German or English. (English is the favorite at present.) Soviet educators believe that it is the responsibility of the school authorities to see that the student acquires a broad body of knowledge and the essential foundation for future study, that young people of secondary school age are not equipped to select such a course of study for themselves.

Students attend school six days a week with two weeks' vacation in winter, a week in spring and a little over two months in the summer. The school day is long and beginning in the elementary grades children are expected to do home work. The amount is considerably greater than that required in our schools. (This is not only true of the Soviet schools but also in most European countries children spend more time in school work than they do in the U.S.A.)

Recently, a group of Soviet physicians criticized the amount of time spent by children in academic work and a re-evaluation of the work-load of Soviet school children is now being carried on.

There are, in all schools and communities, many extra-curricular circles and clubs for dramatics, music, dancing, sculpture, science, handicrafts, etc., where students may follow their special interests and hobbies. In these clubs teachers and students try to discover and develop talents and abilities. If unusual talent in any of the arts appears, the child may enter one of the special schools for the arts mentioned earlier.

Professor Nicholas DeWitt, in "Soviet Manpower" written for the National Science Foundation, writes that "the Soviet student has a broader foundation after his ten years of school, is well ahead of the entrant to an American college in the sciences and mathematics and is as good in the social sciences and languages."

According to Mr. Norton Dodge, graduate student in the Harvard School of Russian Studies, who spent some months observing Soviet schools in 1955, "the ground covered in mathematics and the sciences gives the Soviet ten-year school graduate a foundation in science more than equivalent to that achieved at the end of a freshman year by the American college student majoring in science."

POLYTECHNICAL EDUCATION

Perhaps the most significant new development in the Soviet school program is the introduction of "polytechnical education." This is not wholly new. In the 1920's Lenin advocated the plan and sporadically it has been discussed and tried on a small scale. Now it is to be an integral part of the educational program for all schools. It involves the introduction of practical technical training on various levels at all stages of education, including the elementary. The purpose is to give children an understanding of the processes underlying industry and agriculture in this modern technological age, to give them some actual experience in handling machines and tools, and to inculcate a respect for labor.

Stanislaw Kownacki, in an article on Polytechnical Education in Soviet Schools, based on his report prepared for the Massachusetts Institute of Technology, listed the principles worked out by leading Soviet educators to guide the schools in introducing polytechnicalization; in attempting to develop an understanding of industrial and agricultural processes, the level of basic theoretical knowledge must not be lowered, but rather, raised. On the other hand, teachers are cautioned to select only material understandable to their students. Schools are urged to make full use of local facilities and to introduce the new materials as an integral part of the existing courses. New textbooks are being published, new films and TV programs produced about polytechnicalization. Some pedagogic schools are offering a one-year course on this subject for teachers. Great emphasis is placed on relating the classroom work to community needs. More time is now being given to trips to factories, collective farms, construction projects, and to practical work in laboratory or field. The Ukrainian paper, *Pravda*, for January 10, 1955, reported a conference held in Kiev. Principals of schools and directors of factories made plans for further strengthening the link between theory and practice. In some of the Kiev schools, 8th grade students have been following a six-hour-a-week theoretical course conducted by specialists who also instruct them in practical work. The school reported that their pupils had successfully mastered both the usual material in the 8th grade syllabus and this special work.

The program of polytechnicalization is ambitious but, if successful, will greatly increase the supply of skilled personnel.

AFTER SECONDARY SCHOOL

How does the Soviet secondary-school graduate decide on the next step?

There is no Soviet equivalent of our college of liberal arts where the undecided student may pursue general studies. Application to any higher educational institution presupposes that a choice of career has been made; Soviet education implies training for a definite profession. The decision will not depend upon possibility for employment since a job is assured to every Soviet person. Nor will financial pressures determine the choice, providing the applicant has good marks.

The senior in secondary school is given vocational guidance help by his teachers. Old graduates come to school to tell about their jobs, experts in various fields lecture and try to interest students in their specialty.

Trips to various types of enterprises are arranged. For example, last spring, high school students visited the Timiryazev Agricultural Institute, the Mendeleyev Institute for Chemical Research, the Kiev Polytechnical School. They talked with teachers and students and sat in on classes. Trips are made to collective farms, factories, building projects, laboratories, etc. The opportunities for a variety of experiences in the extra-school clubs also help students discover their vocational bent.

When the major field of work and the preferred school have been chosen, the first hurdle is the final examination. These examinations are taken very seriously and the certificate of maturity, or high-school diploma, is necessary in applying for all higher schools and for many jobs. Mainly oral, the examinations are designed to test the pupil's ability to think, to apply his knowledge to the solving of problems. There is little emphasis on rote learning. Long questions, papers, instead of the true-false type of examination questions are used for the written work.

For the oral examination, a booklet containing the questions on which pupils will be examined is sent to all schools and is shown to the pupils about 10 weeks before the examinations. The questions cover Russian literature, physics, chemistry, algebra and the history of the U.S.S.R. The teachers in each school make up one problem for each group of questions. The pupils do not see these problems in advance, although they are familiar with the questions on which they are based.

At the oral examination, the questions which the pupils have already studied and the problem posed by the teacher are written on cards which are placed, face down, on a table. The pupils draw one card each. They are given time to think out their answers, to solve the problems or do the experiments and are then called before the examining commission which consists of the head of the school, the subject teacher and a colleague who teaches the same subject, two or three representatives from the local education authority and from the Ministry of Education. This sounds formidable to us but it should be remembered that the Soviet children are trained from earliest years to express themselves orally both in class and in clubs; their poise and ability to speak in public has often been commented upon. Nonetheless, former Soviet students seem to agree that the final examinations are a difficult ordeal. There is a tendency to question the reliance upon marks and examinations alone for entrance to higher schools. Discussions going on in educational journals advocate the use of general interviews and greater flexibility in admissions.

Here is an example of a card used during the examinations given in 1955 in chemistry.

CARD #12

Questions: 1) Chlorine: atomic structure, physical and chemical properties, preparation and uses.

2) Petroleum: methods of refining and most important products.

Problem: To carry out reactions confirming the qualitative composition of the given inorganic compound and to calculate, on the basis of its formula, the percentage of content of one of its elements.

Exact figures on the number of secondary school graduates who enter higher schools are not available. Mr. Norton Dodge, writing in the New York Times in November, 1955, gave some figures for a Moscow high school he visited: "Out of 150 graduates in 1954, 105 entered institutes of higher education. . . . About 30% of the graduates of 10-year schools are admitted to higher educational institutions" he wrote. Other graduates enter the *tekhnikums*, intermediate grade trade schools, or go directly to a job.

HOW SOVIET SECONDARY SCHOOLS APPEAR TO OBSERVERS

We quote here descriptions of some secondary schools written by a group of British teachers who spent some time in the Soviet Union on the invitation of the Teachers Union of the RSFSR in the winter of 1952. These well-qualified observers met with the Soviet teachers and also discussed their observations with the Minister of Education.

SECONDARY SCHOOL #315

"Situated on the outskirts of Moscow it has 1,000 pupils in 30 classes. There are 50 teachers and 32 on the non-teaching staff including secretary, bookkeeper, equipment officer, laboratory assistants, cleaners, and cloakroom attendants. A full time doctor, a nurse, and part-time dentist are on the staff.

"There are rooms for physics, chemistry, biology, history and geography and one for the junior classes. In these rooms visual aids are prepared, subject libraries are kept and they are equipped with film projectors. The school owns many films, 200 geography films, 50 biology as well as 600 film strips. There are laboratories, two for chemistry, three for physics and three for biology. Each laboratory has its own projectors. The biology laboratory had 30 microscopes, 17 aquaria with fish, cages of rabbits, guinea pigs and other animals.

"Out-of-school clubs are divided according to age. The younger groups have up to 25 members and the older ones up to 15. As one of their activities, these clubs make visual aids. The history club had made models of historic buildings—Greek temples, medieval castles, models of early tools, of primitive villages. The geography clubs had made models of a coal mine, an oil well, etc."

A SCHOOL IN A RURAL VILLAGE 150 MILES FROM MOSCOW

"There are 500 pupils in 18 classes with 28 teachers and 18 non-teaching personnel. This school had an interesting planetarium that had been built by pupils in one of the clubs. A 15-year old girl demonstrated it, giving a simple and comprehensive lecture. The geography club of this school organizes trips for the summer holidays. Materials and photographs were on display from

journeys made to the Ural mountains, the Crimea and other distant points.

"Next door to this school, a hostel provided accommodation for 100 boys and girls who came from remote districts where the complete 10-year school was not available. The dormitory had 3 or 4 to a bedroom; there were study-halls and recreation rooms.

"At an orphanage nearby, 100 orphan children live and attend the school. There were also teachers' flats nearby where teachers may live rent-free and where they have gardens for their own use."

The British teachers visited several secondary technical schools. They described a technical school for railroad workers in Moscow. This school is administered by the Ministry of Transport. "Most of its 850 pupils enter after passing the final examination of the 7th class. There are four applicants for each place and students who have high marks in their finals are automatically admitted. Children of railway workers have priority, if their marks are equal to others. The purpose of the school is to train highly-qualified workers for the railway systems of the Soviet Union. In the first two years the general secondary-school subjects are studied and there is some technical work. During the third year most of the time is given to the special subject with a few general courses. The fourth year is spent entirely on the specialty. The level in the second and part of the third year equals that of the three years of regular secondary school and the student is given final examinations at the end of each course. All equipment is the very latest in use. Some adult railway workers attend for special training and all students spend one month each year in practical work. After graduation about 5% go on to university-level technical institutes; the rest go to work. They are allowed freedom of choice as to the location of the job but must spend three years working in some branch of the transport industry."

INTERMEDIATE TECHNICAL SCHOOLS

By September, 1956, 250 new technical schools will be opened in 152 different towns and settlements. These schools prepare their pupils to work in 77 different branches of agriculture and industry. Courses are for one to two years, alternating six weeks of practice with six weeks of study. The schools are called secondary schools—but they are recruiting the graduates of the ten year schools and so, for convenience, let us classify them as "intermediate."

These schools are part of the current campaign to interest boys and girls in practical work, manual work. Between 1940 and 1953, the number of specialists with a college education more than doubled. During this period, the number of technicians did not increase in proportion and the lag is now being taken up. These new schools are related to a particular enterprise—farm, power station, etc.—and are training technicians for that enterprise. Some 58,000 students are now enrolled. The students who choose such a course rather than higher education do not necessarily give up further study. Many enter evening classes or correspondence schools; those who wish to enter a college will, if they qualify, be given preference after a few years of work.

TEKHNIKUMS

On a higher level than the technical secondary school but below university grade, the *tekhnikums* are supervised and their programs checked by the Ministry of Education. They are administered by the Ministry of the particular branch of the economy or profession for which they are training specialists. These schools do not aim at the professional competence of the university-trained engineer, but graduate junior technicians in many branches of industry, agriculture, the arts and professions, including nurses, doctors' assistants or "feldshers", midwives, elementary school teachers, workers in the cinema, the theatre, in trade, music, the culinary arts. In the *tekhnikums*, about a quarter of the time is spent on general studies including a foreign language.

Graduates are assigned for a three-year period to a position in their chosen field at the salary usual for this position.

INSTITUTIONS OF HIGHER EDUCATION

There are two types of schools of higher education in the Soviet Union: Universities and Institutes.

The scholastic standard is the same for both types of institutions of higher learning. The requirements for entrance, stipends, and scholarships are similar; the degrees are of equal value. The administration is largely the same; differences lie in program and curriculum.

Universities, of which there are 33, with at least one in each republic, offer a broad type of education directed toward preparing research workers in the sciences and humanities and teachers for

the secondary schools. The universities have from six to twelve faculties. Courses run for five years.

Institutes are more specialized, training highly skilled specialists for a particular branch of economy or for a particular profession. The course is usually for five years. Six years are required in medical schools and in the Moscow Architectural Institute.

In all schools of higher education the academic year begins September first and runs to July, with two weeks vacation in the middle of the winter and the two months in summer.

In all higher schools in the non-Russian republics, the language of the area is used as well as Russian. Formerly, in theory, all teaching had to be done in the language of the area and professors from other parts of the country were expected to learn the native language. Now that so many of the non-Russian peoples are graduating from the institutes of higher education, colleges in the non-Russian areas can be staffed with people from the locality and this language requirement is no longer enforced. For example, at present 50% of the staff of the Central Asian University of Tashkent are Uzbeks. In addition, Russian has so long been the second language that students in higher education schools are able to work with professors who use it. Students from other areas who wish to attend a school in a non-Russian republic must pass an examination in the language of that republic for entrance.

ADMINISTRATION

Universities are under the control of the Ministry of Higher Education of the USSR. Institutes are controlled by the ministry for which they are preparing specialists and under those aegis they are usually established. The Ministry of Higher Education, however, supervises methodology, advises on program, and confers doctoral degrees in the Institutes. The head of the university, called the Rector, is appointed by the Ministry of Higher Education; the head of an Institute, called a Director is appointed by the Ministry controlling it. The Rector or Director is responsible for the conduct of the school, and working with the council composed of professors and assistant professors, deals with problems of teaching and research, selects the teaching staff and confers degrees. Department heads and deans are appointed by this council, subject to Ministry approval. Major changes in program are also subject to approval from the appropriate Ministry.

Only persons holding a Doctor's degree* may be professors. Only those with the degree of Candidate may be "Docents"—assistant professors. The rank of instructor may be conferred by the Council on a college graduate who has a good record of work on the staff as a practice teacher, laboratory assistant, etc.

The faculty in the higher schools is competitively chosen. Whenever a post is vacant, the fact is widely publicized. Applications are examined by the council of the institution and the decision is voted by secret ballot. Faculty members have permanent tenure to the age of 65. Although a pension is received at the age of 60, a faculty member may elect to continue in scholastic work without thereby forfeiting the pension.**

All persons employed in higher educational institutions or scientific establishments belong to the same union: laboratory assistants, professors, instructors, students and post-graduate students. Through the union, members participate in community activities, supervise working conditions and safety measures in their institutions, cooperate in the administration of health resorts and vacation camps.

ADMISSION

Any graduate of a ten year school—between 17 and 35 years of age—may apply to take examinations for an institution of higher education.

Professor Arthur James May of Rochester University, after a visit to Moscow University, described the entrance examinations as "credibly rigorous and searching,—only about one in ten successfully surmounts this hurdle." Until this year, all students who received gold medals in their graduation examinations were automatically accepted at the school of their choice; silver medalists and holders of the first-class diploma were required only to take one examination, in the subject of their major interest. One-fifth of the students applying for the universities last year had received gold or silver medals or first-class diplomas. So many of the applications were for a few favored schools that large numbers had to be turned away. There were, in July of 1955, about 7,000 applications for the 2,700

* See pp. 28-29 for description of Soviet degrees.

** According to Soviet law, persons receiving old age pensions (men of 60, women of 55) may continue in paid jobs without loss of pension.

vacancies in Moscow University. There were about 700 applications for the 250 places in the Philology department. The situation was similar in about 80 other schools of higher education, although there were still institutes and universities that had vacancies.

As of 1956 wherever the number of medallists or first-class diploma holders applying at a given school exceeds 40% of the vacancies, applicants for technical institutes will be examined in mathematics; for the humanities, in Russian language and literature; for entrance to schools which train biologists, agriculturists, physicists, for schools of medicine and the natural sciences, a physics examination will be required. These examinations are to be given before the regular entrance examinations so that any who fail the medallists examination may take the regular examinations.

This year only applicants who have satisfactorily completed the elementary teacher training courses which are given in technical secondary schools or *tekhnikums*, or those who have had teaching experience, will be accepted for the advanced pedagogical courses in the institutes which prepare administrative personnel for the educational field.

The Ministry of Higher Education has advised entrance committees to give preference to those applicants who, the standard of scholarship being equal, have worked in various branches of the national economy for not less than two years since completing school and to those who have completed a term of service in the army.

Among the very first students to enter the new Moscow University in September 1953, were young men and women who had participated in the building of it. They studied while working on the construction job, passed the examinations and were given preference over other applicants.

TUITION

The students who are accepted receive a state stipend adequate for living. In Moscow University this is 290 rubles a month for freshmen and increases to 400 a month for seniors. Out of this stipend students pay for their room and board. The room rent in Moscow University is 30 rubles a month, which includes linens. Continuance of the stipend depends upon the student's scholastic standing. If it falls below the acceptable level, the stipend will not

be granted. If the marks are excellent, the stipend may be increased by as much as 25 per cent.

Many special scholarships have been established for students who have particularly distinguished themselves. In Moscow University alone there are 223, usually established in memory of some great Russian or Soviet person. Among them are the M. V. Lermontov, the Anton Chekhov and the D. L. Mendeleev scholarships. In 1943 a scholarship in honor of Isaac Newton was established in the Department of Physics of Moscow University. Scholarships are frequently higher than the state stipend. The Isaac Newton scholarship pays 780 rubles a month.

Relieved of the need for earning money few, if any, students work for money during their vacations. Summer time may be spent in independent study, work on the thesis, travel or recreation.

UNIVERSITIES

Ten of the 33 Soviet universities were established in Czarist times; the majority have been opened since the revolution of 1917.

The Lomonosov University of Moscow, the oldest in the Soviet Union, recently celebrated its 200th anniversary. Founded in 1755 at the initiative of the famous Russian scientist, M. V. Lomonosov, it has grown to be the largest in the U.S.S.R. The total number of students enrolled is 22,000, including those taking correspondence courses, from 57 different nationalities, with 2,000 professors and instructors. There are 12 schools with 210 departments.

The university is housed in two groups of buildings. The old university, in the city, has 10,000 students in the humanities: Philosophy, History, Law, Economics, Philology, Journalism.

The new science building, called The Palace of Science, on the Lenin Hills five miles from the center of Moscow, was completed in September 1953. In its 6 schools are enrolled 12,000 students in regular or correspondence courses, preparing scientists and engineers in 42 fields.

Built on an 890 acre plot, the new science building is 32 stories high and its spire reaches 800 feet into the air. Professor May, of Rochester University's History Department wrote that the building "advertises the Soviet commitment to learning. Soviet ingenuity and skill have done much to beautify the surroundings—with a long tree-lined esplanade, gardens of flowers artistically laid out The breath-taking *avila* is ringed around with mosaics of out-

standing men of science through the ages, from a wide range of countries."

The new science division has 162 lecture rooms, 1,693 classrooms and laboratories, a library of 1,200,000 volumes, gymnasiums, swimming pools, club rooms, an auditorium for 2,000. There are laboratories for research scholars and laboratories for students, supplied with modern equipment for every branch of science.

There are dormitory quarters for 6,000 students with suites of two rooms and bath for each two students and apartments for married graduate students and for the staff; restaurants, lunchrooms, a kitchen for students' use on each floor, recreation rooms with TV; games, radio and pianos; and a gymnasium and swimming pool. The university maintains its own sanitarium on the Black Sea and two holiday camps, one on the sea in Latvia and one in the forests near Moscow. Students pay only a nominal fee for these facilities.

The University of Leningrad has 10,000 undergraduate and 500 postgraduate students. New departments in Journalism and Slavic Languages have recently been added, bringing the number of departments to 13. During the siege of Leningrad in World War II, 2,500 of its students joined the Army. Those professors and students who stayed in the city to defend it, carried on study and research in spite of the hardships, undernourishment, lack of fuel and light.

The University of Kazan is almost as old as Moscow University. Established in 1804, it has 4,000 students, including 950 Tatar men and women from a minority nationality that, before the revolution, was illiterate.

Shevchenko University of Kiev is 120 years old and is particularly famous for its Philology Department and its courses in Byzantine studies. The university is being expanded; a hostel for 6,000 students is being built; also a stadium and swimming pool. When plans have been completed, the university will be three times its present size.

Mechnikov University of Odessa is another long established institution with a scientific library of 1,500,000 volumes. Its botanical gardens, museums, and astronomical observatory are notable.

Educational advance has been particularly dramatic in formerly backward areas, where there were, in Czarist times, no institutions of higher education and few schools. The Lenin University of

Byelorussia was established in Minsk in 1921. It was the first school of higher education to be opened in this region. Fifty per cent of the present staff of the University of Minsk are Byelorussians and 1,100 of its 1,800 students are from that republic.

Higher education has made great advances in the central Asian republics. For example, in Tadzhikistan 58 out of every 10,000 persons are studying at a higher school; in Turkmenia the figure is 60; in Uzbekistan, 71; and in Azerbaijan 93 out of every 10,000 are studying in an institution of higher education.

Recently the University of Central Asia, in Tashkent, Uzbekistan, celebrated its 35th year. This, the first institute of higher learning to be established in Central Asia, now has 9 schools, 65 departments and 4,000 students enrolled from 20 different nationalities.

Tajikistan is a mountainous Asian republic and transportation in the high Pamirs, except by airplane, is difficult and slow. Therefore the Tajik University, for the last few years, has been sending examiners by plane to secondary schools in the more remote mountain areas so as to be sure that all qualified students who wish to take the examinations may do so. Students who are admitted will be brought to the University by plane from their mountain homes.

The newest university is the Gorky University of Turkmenia opened in 1950 with departments of History, Philology, Mathematics, Physics, Law, Geography and Geology.

INSTITUTES OF HIGHER EDUCATION

Institutes prepare highly skilled specialists, engineers and research workers. As previously noted, they have a special relationship to a particular area of technology and are usually established by the Ministry of that branch of the national economy.

As new branches of the economy are developed and new needs appear in cultural fields, institutes are established or departments added to the universities to provide the necessary highly trained personnel. Emphasis is being placed at present on distributing these schools of higher education more widely. Far too many, according to Soviet authorities, are concentrated in Moscow. A program of decentralization is now in process. In the Ural region, in Kazakhstan, Siberia and the Far East where the need for specialists is growing so rapidly new institutes are being opened.

In 1952 the Institutes of Higher Education were classified as follows:

Teacher-training Institutes and Colleges.....	379
Technical and Transport Institutes.....	211
Agricultural and Forestry Institutes.....	74
Veterinary Institutes.....	19
Institutes of Economics and of Law.....	35
Medical Institutes.....	74
Theatrical Institutes, Conservatories and Institutes of Fine Arts.....	49
Institutes of Physical Culture.....	16

TECHNICAL AND ENGINEERING INSTITUTES

Technical institutes are of two kinds: polytechnical, which have a dozen or more departments and specialized institutes with five or six departments. Among the largest polytechnical institutes are the Bauman Higher Technical School in Moscow, established 125 years ago, The Tallinn Polytechnical School of Estonia, and the Armenian Polytechnic in Erevan.

In technical colleges the time is divided as follows: Socio-economic studies, political economy and Marxism-Leninism occupy 8%; general science and mathematics, up to 30%; general engineering courses, up to 34%; and 28% for the special subject. According to G. Kaftanov, Deputy-Minister of Culture, (formerly Minister of Higher Education) more general engineering courses are to be required and the close connection between the scientific disciplines is to be stressed, in order that engineers may be able to switch from one special aspect of production to another.

In technical schools the curriculum may be built around the industrial or agricultural field of application rather than around traditional subject matter. The Ministry in charge of the institute cooperates in providing opportunities for the practical experience which is required.

Education for medicine is carried on in special Medical institutes, not in the universities.

Among the technical institutes are the institute for water transport, for the fishing industry, the oil industry, the forestry service. There are six textile institutes, institutes for transportation. Special institutes train administrators for the cooperatives and for work in retail trade. One of the oldest is the Leningrad Mining Institute founded 175 years ago. One of the newest is the Kazak Metallurgical

Institute, preparing experts for the new industries growing up in that Asian republic.

HIGHER EDUCATION IN THE ARTS

Conservatories (Institutes for Musical Education) prepare both performers and teachers. Best known are the conservatories of Moscow and of Leningrad. The Tchaikovsky Conservatory of Moscow offers courses in piano, conducting, voice, opera, composition, and the orchestral instruments. Students in the pedagogic department of the conservatories do practice teaching in schools and clubs; students perform over the radio and in concert halls in all parts of the country. Graduates from these conservatories include such world renowned musicians as David Oistrakh and Emil Gilels, both now on the staff of the Moscow Conservatory.

For the theatre arts there are many institutes: the Leningrad Institute for Research in the field of theatre and music, and the Leningrad Institute for Theatre Arts where actors and producers are trained, the Theatre Institutes associated with the Maly Theatre and the one connected with the Stanislavsky Theatre of Moscow. In Baku, the Theatrical Institute of Azerbaijan offers parallel courses in acting, producing and directing—one in Russian and one in Azerbaijani.

Students in theatre institutes select from three groups of courses: acting, producing, and directing. History, literature, language and philosophy are required of all students.

Ballet schools like the Lunacharsky Institute of Moscow, train not only dancers but also ballet masters and directors for music-drama, critics, and research workers.

In 1919, the all-Union Cinematographic Institute in Moscow was founded to train actors, operators, and producers. There are now institutes of cinema and cinema-engineering in Georgia, Uzbekistan, Tadzhikistan, the Ukraine, Armenia and Byelorussia. Best known of the literary institutes is the Gorki Writers Institute in Moscow, opened in 1933 for training dramatists, writers and critics. Students come to these schools from all over the Soviet Union and many return to their native republics to help establish schools for the arts or to teach the arts in secondary schools.

TEACHER TRAINING

For the success of the plan for universal ten-year education a plentiful supply of trained secondary school teachers is essential. This is one of the major tasks of the universities as well as the pedagogical institutes. In general, universities prepare teachers for the upper grades, 8-9-10 of the secondary schools and pedagogical colleges prepare teachers for grades 5-6-7 (Teachers for the primary schools study in *tekhnikums*). In addition to the teacher training institutes there are many Higher Schools, like the Leningrad Institute and the Academy of Pedagogical Science in Moscow concerned with research and with preparing personnel for administrative and research work in the field of education.

Teacher training schools are under the Ministry of Education of the republic for which they are preparing teachers and the curriculum is planned to meet the needs of the area served. For example, the Armenian Pedagogical Institute includes the Armenian language and literature as well as the Azerbaijani language and literature. The Pedagogical Institute of Kazan has added courses in the Tatar language and literature.

In the Herzen Pedagogical Institute of Leningrad a special department of the Peoples of the North was opened in 1949. Four hundred students of 22 different nationalities, including many that formerly had no written language, are studying to become teachers, most of the them will work in their native areas.

Dr. M. H. Trytten, Director of the Office of Scientific Personnel of the National Research Council, in the Journal of Engineering Education for January 1955, in an article on Soviet technical education commented particularly upon the quality of the teaching. "Each subject", he wrote, "is taught by competent teachers specializing in that particular field of study." He noted that in teacher training in the Soviet Union the emphasis is on the particular field of study; that is, on content rather than method of teaching. Mr. Dodge, after visiting the Pedagogical Institute of Rostov, where 3,000 teachers were studying and where the science department has a staff of 18 for the 340 students, wrote "the future teacher of physics spends 60% of his time on physics, mathematics and related subjects. His course may be compared with that of a physics major in a university of the U.S.A." Psychology, history of pedagogy and teaching methods are included in the course and ten weeks

of practice teaching is required during the last two years of the course. 90% of the Soviet science teachers are similarly trained.

Recently time spent on pedagogical subjects has been somewhat increased. Russian language and literature majors spend 14% of the time on pedagogy; history majors, 13%; physics majors, 10%.

There are more young people applying for teacher training than can be accommodated at present. Mr. Dodge discussed this fact in the *New York Herald Tribune* of 2/11/56 and explained it as follows: "The teacher occupies a preferred place in Soviet society, a professor's salary and prestige equal those of high governmental and industrial officials. Although secondary school teachers lack the high salaries of professors, they are highly respected, fully accepted members of the community. Eagerness to enter the teaching profession has greatly aided the expansion of Soviet education."

Perhaps, in addition, the fact that a non-teaching staff in Soviet schools relieves the teacher of many burdensome details of housekeeping, clerical work, etc. contributes to the attractiveness of the profession.

In addition to graduates of pedagogic schools, in 1956, 80% of the graduates of universities majoring in history, geography and biology, and 60% of the mathematics, physics and chemistry majors will work as secondary school teachers.

THEOLOGICAL EDUCATION

Theological schools in the Soviet Union are separate from secular colleges. This has always been true in Russia. In Czarist days there were no schools of theology attached to Moscow or other universities.

There are now 8 seminaries and 2 academies in the Soviet Union which prepare young men for the ministry. The course in the seminaries is four years; in the academies, five. Students receive stipends for living, from private gifts to the churches, not from State funds.

The Armenian church supports a seminary and the Moslems have a school, called a Madrasah, for training their priests.

CORRESPONDENCE SCHOOLS

The education given in correspondence schools of higher education is on a par with that given in the regular universities and institutes to attending students; the graduate enjoys the same privileges

and his degree has the same value as a degree granted after the regular course.

Almost every institute or university in the Soviet Union carries on correspondence courses. In addition, there are 22 special correspondence schools for higher education and eight evening colleges. Each has a wide network of branches and consultation centers all over the country. One of these is the All-Union Polytechnical Correspondence Institute. Entrance examination for this school may be taken at any one of 25 centers scattered throughout the Soviet Union. The student who is accepted is supplied with texts, programs, assignments and may come to the nearest center for consultations and lectures.

Examinations for entrance on a correspondence course must be taken in person. The applicant who is accepted is then given a ten-day orientation course in laboratory and lecture-hall, learning to use the correspondence material. In addition, for two periods during each year, 30 days in summer and 10 in winter, correspondence students in the pedagogic course or in a university must come to the institute or university. Students in all other courses are required to spend either one period or the other. Correspondence students are usually on a job and the employer is required to grant paid leave for these periods as well as time for the examinations.

The All-Union Polytechnical Correspondence Institute has nine departments training in 43 special fields of engineering. On the staff are 150 who hold the degree of Candidate and 30 with the full degree of Doctor, as well as 100 instructors. In 1954, 5,500 were enrolled in this school alone.

Correspondence schools are expanding and new centers are being set up in many parts of the Soviet Union.

PROGRAM AND CURRICULUM

The course of study in schools of higher education is constantly being revised. V. P. Yelyutin, Minister of Higher Education of the USSR, wrote in 1956 that the syllabus is now being changed to allow a greater amount of time for independent work, with somewhat less time to be spent in the lecture halls.

In some departments, courses considered too narrowly specialized have been dropped as part of an over-all plan for greater integration. All narrow special subjects have been removed from

courses in mathematics, political economy, psychology, astronomy and geo-physics. The special subjects will remain in philosophy, physics, chemistry, geology and geophysical prospecting methods. For a biology major, the time devoted to foreign languages, to physics, chemistry, higher mathematics and teaching methods is to be increased.

The method by which changes are made is of interest as it illustrates the relationship between the schools and the Ministry. For example, a new draft of a curriculum for history majors is now under consideration. A committee of professors and assistant professors from the universities of Erevan, Tартu, Tbilisi and Saratov sent a proposed draft of a new curriculum to the University of Kiev, to the Central Asian University, the University of Moscow and the History Institute of the U.S.S.R. Academy of Sciences. After discussion and changes, the draft was sent to the U.S.S.R. Ministry of Higher Education for consideration.

A new curriculum in geology, compiled on the basis of comments and criticisms made by the ministries employing graduates in geological fields and geological departments of the schools during 1954-55 has been adopted. Geology is now divided into six major fields. During the first three years of study, all students in geology will receive training in fields related to their major subject. For example, the new curriculum lists 27 subjects common to the six fields of geological study and proposes that 68% of the scheduled time be spent on these studies and the rest on practical work and study of the student's specialty.

Some discussion of classical studies is now going on. The question was opened by Professor N. Deretani, head of the Philology Department of Moscow University, in an article urging greater attention to Latin and Greek. Professor Deretani pointed to the fact that only in some of the philology departments are classical studies being carried on. There is, he said, an urgent need for more classical scholars able to translate classical works and for more teachers of Latin and Greek. In the first years after the revolution of 1918, classical studies at all levels were dropped. The fact that now, in philology departments Latin and Greek are offered, seems to indicate a change in attitude toward classical studies.

Underlying the entire program is the principle that theory must be combined with practice. Practical work varies, naturally, according to the subject. During the first two years it is largely

academic. During the third, fourth and fifth years the practical requirements in "productive work" and in the field are fulfilled. For science students, this may take the form of participation in expeditions, work in a museum, a laboratory, or teaching in a secondary school. The philology student may work in a library; the law student in a government agency or court; students of journalism or writing in a publishing house, teaching, or on a newspaper; the agriculture or veterinary student will work at a machine-tractor station or on a collective farm; the engineer on a hydroelectric project.

Future engineers spend no less than thirty weeks and agronomists up to 50 weeks in some form of practical training during their five years. They are sent to the most advanced enterprises for their practical work so that they may be familiar with the newest techniques.

Rector I. G. Petrovsky of Moscow University, discussing the curriculum for science students, writes: "A feature of university education in the Soviet Union is broad general educational grounding for the future specialists. To illustrate, here is a list of subjects studied in the chemistry school: like students in all university schools, the student studies Marxism-Leninism, political economy, philosophy and a foreign language. The largest numbers of hours are devoted to the special subjects: inorganic chemistry, organic chemistry, analytical chemistry, physical chemistry, colloid chemistry, chemical technology, inorganic synthesis, structure of matter, history of chemistry. The curriculum also includes higher mathematics, general physics, theoretical physics, crystallography, etc. Other courses, including practical work in special laboratories will depend on the specialty chosen by the student." During the five year course, 1,758 hours will be spent in theoretical studies, 2,758 hours in laboratory and practical work.

A typical course for engineers is outlined in an article in *Product Engineering* for February, 1953. During the five years, 5,000 hours are spent on academic courses and 2,700 hours on general engineering subjects such as descriptive geometry, drafting, physics, chemistry, mathematics and strength of materials. 1,500 hours are spent during the last two years on special subjects. The article comments particularly upon the emphasis placed on designing and mechanical drawing. Field experience is required during the last two years, for machine building—22 weeks; in mining—27 weeks; in the archi-

tectural institute—23 weeks. Instructors go with the students and carry on seminars during the practical work. The reports required of the students are expected to critically analyze the work in which they have participated.

Teachers of foreign language and persons doing research in this field are educated in linguistic institutes. A typical four year course in such an institute includes:—political economy, dialectic and historical materialism—1 year; Russian language—2 years; Russian literature—1 year; linguistics—1 year; history of the language being studied—1 year; literature of the language studied—2 years; lexicology—2 to 3 years; phonetics and grammar of the language—3 years; 1 year—methods of teaching and one year history of teaching methods; psychology and history of education—1 year; practice in the language to be taught—reading, writing and oral—every year; history of the Soviet Union—1 year; history of the country whose language is to be taught—1 year and 1 year of economic geography of the country. Linguistic institutes offer French, German, English and Spanish. There are special institutes for the Eastern languages where the course is five years.

Study is carried on through lectures, laboratory work, seminars and practical work. During the first two years, 96 hours a week are spent in lectures and laboratory, 32 hours a week in the third and fourth year and no more than 12 or 13 hours in the final year when most of the work is carried on in seminars, and in independent study. Attendance at classes is obligatory. Seminars are elective but students who elect them must pass tests at the end of each term.

Students are required to present a paper at the end of each of the first four years summarizing the independent work they have carried on in their chosen field. At the end of the fifth year, a graduation thesis must be presented and defended before a Commission of the Ministry of Higher Education.

A British correspondent wrote in the *London Times* educational supplement of July 1954 that "a graduate of a Soviet university is required to present a thesis of a quality far higher than is customary in any British university . . . the diploma granted at the successful completion of the five-year university course is equivalent to a Master's degree."

Graduates from the institutes and universities are required to spend three years working in their chosen profession in any position to which they are assigned, at the salary set by law for that work.

The various ministries and organizations needing graduate students submit their requirements to the Ministry of Higher Education early in the year. The jobs are posted so that students may discuss them and express their preferences. In the early summer, graduates are interviewed by a committee chaired by the head of the institution and including representatives of the ministry or organization requesting specialists. Family needs and the desires of the applicant are considered and when appointed a graduate is given one month's vacation with full pay. If it is necessary to move, all attendant expenses for the family will be paid.

A graduate student, whose goal is usually an academic career or research and who aspires to study for the next higher degree in the Soviet Union, the degree of "Candidate", must qualify as an "Aspirant." He is usually required to pass examinations in his field and to be recommended by the school where he studied. If accepted as an "Aspirant" he will receive a stipend considerably higher than that granted undergraduates. If the prospective candidate is already on a job he will be granted leave with full pay to study for a degree. (In this case no stipend is paid). The aspirant is assigned to a member of the staff who acts as his advisor. Three years will be spent in study and research. A thesis, frequently prepared under the guidance of a member of the Academy of Sciences, must be presented and must be publicly defended before a session of the Learned Council of the School. Applicants for the degree from a university must also pass examinations in the field of study. The degree of Candidate approximately corresponds to our Ph.D. and entitles the holder to teach in an institution of higher learning with the title of "Docent." (Assistant Professor). In 1954-55, 1,860 "aspirants" were studying in Moscow University.

Relatively few institutes and universities are empowered to grant the Soviet degree of doctor, and not more than 200 such degrees have been granted in any one year.

According to Rector Petrovsky of Moscow University "a Candidate must demonstrate general theoretical knowledge of the particular field, specialized knowledge with regard to problems dealt with in the thesis and the ability to do independent research." A Doctor of Science must already hold a degree of Candidate. After completing original research, he or she must present and publicly defend a doctoral thesis which "reflects independent investigation resulting in a solution of scientific problems, or general conclu-

sions concerning the problem, or a scientific presentation of new problems of considerable interest to science."

The work for the doctorate is frequently carried on outside of the schools of higher learning, in research institutions or independently. There are, however, seven institutions of higher education with special post-graduate departments for persons working for a doctorate. Members of teaching staffs of higher educational establishments with the degree of Candidate may be sent to these post-graduate centers for one or two years' study to prepare for their doctoral thesis. Those sent to work for a Doctorate will receive full salary during their period of study.

Engineers, administrators in industry or agriculture, or leaders in cultural fields who have a degree but wish to continue study, not necessarily leading to a doctorate, if accepted, may spend two years in post-graduate work in some universities or institutes on paid leave from their positions. Medical doctors who have worked in rural areas for five years are granted leave with pay for three months' refresher courses at a medical institute.

Honorary doctoral degrees are rarely granted. They may be conferred upon outstanding persons who have, for at least twenty years, been working in a particular field and who have made notable and original contributions in research.

SCIENTIFIC RESEARCH

"Those leaving a higher school should be able independently to find a scientifically motivated solution to any theoretical or practical problem arising before them," writes Rector Petrovsky. The well-known scientist, Dmitri Mendeleev is often quoted. "The University," he said, "should train persons who are able to go into the realm of the unknown—who are inquisitive and possess all basic faculties to achieve still unknown fields of knowledge." Research is carried on in the institutes, universities and in the many research establishments of the Soviet Academy of Sciences.

The U.S.S.R. Academy of Science has 12 affiliated academies, 91 institutes and 18 laboratories for research. Thirteen of the 16 republics have a Republic Academy of Science. Among the branches in which research of a very high order is carried on are the Academy of Medical Science, the All-Union Academy of Agricultural Sciences, and the Academy of Pedagogical Science of the R.S.F.S.R.

In Institutes and Universities many of the scholars and scientists on the staff devote themselves entirely to research and do little or no teaching. Recently, there has been greater emphasis on "pure research." A. N. Nesmeyanov, President of the Academy of Sciences of the U.S.S.R., in an article in *Pravda* last December wrote: "Science penetrates ever more deeply into the life of Soviet society, reveals more and more new opportunities for technical progress, for raising labor productivity and promotes the further flourishing of the socialist economy and a fresh upsurge of national well-being and culture. We are not yet doing all that must be done to develop science and to apply it to life. The coming five-year plan must bring a turning point in this direction." He proposes, as part of the greater emphasis on pure research, that scientists be given very great latitude in planning their projects, that they be given no specific tasks or time schedules. Researchers would thus be turned loose on the most hopeful areas.

EXTRACURRICULAR ACTIVITIES

In spite of the rigorous academic schedule, life is not all study. The first and second year students are required to take sports and to pass tests for physical fitness. Older students may register for gymnastics, fencing, swimming, basketball, track, tennis, skiing, skating, motor-cycling, soccer, volley ball or mountain climbing. Chess matches and sports contests between departments are frequent and the annual Spartakiade is a tradition. During the holidays there are events between the universities, hiking, yachting and mountaineering. Equipment and facilities are provided through the university and the student clubs.

In the 69 amateur art circles of Moscow University over 3,000 are enrolled. There are choruses, orchestras, a jazz band, dance groups, dramatic clubs. Performances are regularly given at the university and many of the musical and dance clubs perform in other parts of the country. Painting and sculpture is carried on by students in their own clubs.

Students are expected to take an active part in community work, particularly with young people. Their cultural clubs perform at schools, factories and for collective farms; students give lectures and demonstrations in primary and secondary schools and at young pioneer meetings and "hobby circles". Contests in one subject or another for school children are frequently organized by

college students. For example, Moscow University students were responsible for organizing a Mathematics Olympics. Problems were sent to secondary schools throughout the Soviet Union. Winners in one school competed with other winners in their area; the winners of area contests entered a Republic competition and finals were held in Moscow where professors of mathematics from the university were interested observers.

Nationally, there are three student organizations in Soviet universities and institutes; the *Nauka*, a sport organization, the Soviet Youth Anti-Fascist Committee, and the *Komsomol* or Communist Youth League.

The *Komsomol* is a political organization; in 1956 it has 18,500,000 members in 431,000 branches.

In the schools, its task is—according to the 1956 Soviet Handbook for Propagandists—"the question of ideological education and the upbringing of youth, the heightening of the level of political understanding and of productive activity."

Merle Fainsod of Harvard in a report on the *Komsomols*, "A Study of Youth under Dictatorship", writes that the duty of the *Komsomol* is to give political instruction to its members, to give political education and leadership to non-affiliated youth and to give assistance and take leadership in carrying out government and party programs in all fields including agriculture, industry, and cultural activities.

The students in each school assume responsibility for self-government in the dormitories and in the school, working through the trade union and through committees on which all student organizations are represented.

Scientific clubs are a very important part of student life at all the universities. At Moscow University many thousands of students belong to 69 engineering and scientific societies and 1,400 student science clubs. Very serious work is carried on in these student organizations and they play an important role in stimulating and developing interest in research and invention. Contests are frequently held; prizes offered for the best papers and those accepted are published in scientific journals. Members of these societies frequently contribute valuable material to a school's program of research. For example, in 1950, 700 students at the Bauman Technical Higher School were engaged in research and 50 of them received certificates for their inventions.

CONCLUSION

Education is a matter of high priority in the U.S.S.R. The goal of universal secondary schooling is well on the way to achievement. The standard of scholastic work, especially in the sciences and mathematics is high. Every boy or girl who is able to meet the academic requirements may acquire a college education either in one of the institutions of higher education, in a correspondence school or in evening classes. The desire to learn, to study, seems to have been enormously stimulated and to be widespread. Some 58,000,000 persons—according to Soviet authorities—are studying in some type of educational institution.

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